

ABSTRACT

A STUDY OF HYPONATREMIA IN CIRRHOSIS LIVER & COMPARISON OF MELD – SODIUM VS MELD SCORES FOR PREDICTING SHORT TERM MORTALITY IN PATIENTS WITH DECOMPENSATED LIVER DISEASE

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BACKGROUND

Hyponatremia is common in cirrhosis. It is a result of high serum level of renin/aldosterone due to portal hypertension, a decreased vascular response to vasoactive drugs and reduced solute free water clearance. Hyponatremia is an independent predictor of mortality in patients with cirrhosis, but its prevalence and clinical significance is unclear. It is evidenced by its close association with the occurrence of complications, the prevalence of hepatic encephalopathy, hepatorenal syndrome, spontaneous bacterial peritonitis, refractory ascites, and hepatic hydrothorax. Survival chances change significantly, especially in the ranges of sodium change between 120 and 135 mEq/L, when a decrease in serum sodium of one unit corresponds to a 12% increase in mortality risk in the following 3 months. Previously MELD scores has been used to prognosticate patients for liver transplantation. Hyponatremia is in general considered a predictor of early mortality, several Prognostic models incorporating serum sodium levels were better able to predict urgency and need for transplant in end stage liver disease patients. *MELD-Na score* differs from the standard MELD score because it uses the Na value to adapt the result and to provide a more specialized view and improves upon the MELD Score for liver cirrhosis, especially in regard to the mortality prediction.

AIMS AND OBJECTIVES

To study the prevalence of hyponatremia in cirrhosis liver and to show that MELD- Na score is a better predictor of mortality than standard MELD score among end stage liver disease patients who are awaiting liver transplantation.

METHODS

The study was conducted on 100 patients (72 males, 28 females,) admitted to Government Rajaji Hospital & Madurai Medical College during the study period from June 2017 to September 2017 based on inclusion and exclusion criteria. The patients were divided into three groups according to their serum level of sodium. Group A included 40 patients with serum sodium >135 meq/L, group B included 32 patients with serum sodium between 135 and 130 meq/L, and group C included 28 patients with serum sodium <130 meq/L. For each of the patients, a clinical examination, laboratory investigations, chest X-ray, ECG, abdominal usg, and echocardiography was conducted. The presence of complications and its frequency in all 3 groups were studied and analysed. Patients were reviewed after 3 months and their status was analyzed.

RESULTS

Hyponatremia was found in 60% of our cirrhotic patients (Gp A-40, Gp B- 32, and Gp C-28). No statistically significant difference was found between the three groups with respect to age and gender. Alcohol was the most common cause of cirrhosis in all the three groups (48%). Also hepatic encephalopathy (28%), ascites (71%), hepatorenal syndrome (21%), spontaneous bacterial peritonitis (27%), and variceal bleed (22%) were significantly more common in hyponatremic cirrhotic patients. There was a significant difference in all complications in group C compared to groups A and B. The same was true of group B compared to group A. And they showed significantly increased MELD score (Gp A-19.15, Gp B- 21.5, and Gp C-23.28), MELD-Na score (Gp A-14.07, Gp B-14.07, and Gp C-28.89). The MELD and MELD-Na scores increased significantly in group C compared to groups A and B and in group B compared to group A. When compared to MELD score, the differences between the 3 groups was highly significant in MELD Na scores. At the end of 3 months of registration, patient's status was reviewed. 10 patients were died. In group B, 1 patient died and in group C, 9 patients died (8 males and 1 Female). There was a significant increased mortality in group C compared to groups A and B. The MELD-Na score correlated strongly with short term mortality than MELD.

CONCLUSION

The existence of hyponatremia is associated with a poor control of ascites and greater frequency of hepatic encephalopathy, hepatorenal syndrome, and spontaneous bacterial peritonitis and variceal bleeding. Using serum sodium as a variable and incorporating it into the MELD score further increased the accuracy of the prediction model. This study showed that MELD Na score is better predictor of death on the waiting list for Liver Transplantation than MELD alone, confirms Sr Na as a robust predictor of waiting list mortality.

KEYWORDS

Liver cirrhosis, hyponatremia, ascites, hepatorenal syndrome, hepatic encephalopathy, MELD, MELD Na.